CLC **License Server**

Administrator Manual

User manual for

CLC License Server 3.6.1

Windows, Mac OS X and Linux

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This software is for research purposes only.

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Chapter 1

Introduction

This manual describes the installation, configuration and maintenance of CLC bio's License Server, which uses the LM-X License Manager system. It is written for system administrators and thus assumes some degree of familiarity with standard concepts on the platform used for the server.

If certain parts of the manual are unclear, please do not hesitate to contact us on support@clcbio.com.

1.1 Overview

The CLC license server enables you to host a set of licenses for CLC applications on a central license server. These licenses can then be checked out from any client computer on your network with access to the license server. When the application is stopped, the license will be returned to the server and become available for checkout by another user.

For an application to get a license, it has to have access to the license server. For users with a need to use the Workbench while off line, it is possible to *borrow* a license for a certain period of time.

Throughout this manual, the term *feature* refers to the type of application in question, for example *CLC Genomics Workbench*.

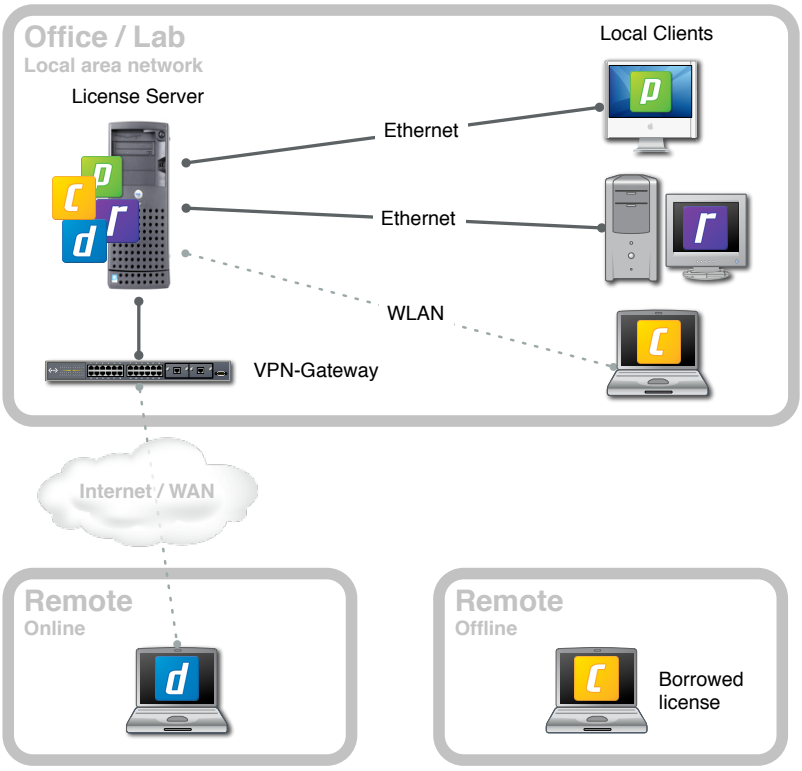

Figure 1.1: *Diagram of a license server setup.*

1.2 Server requirements

The license server does not require much in terms of processing power and it only consumes a few megabytes of memory. This means that if you are putting together a dedicated server specifically for use as a license server, a modestly powered system equipped with a high number of redundant components will probably be a better investment than a system which is faster, has more memory, etc.

The license server is available for the following operating systems:

- Microsoft Windows XP, Windows Vista, or Windows 7, Windows Server 2003 or Windows Server 2008
- Mac OS X 10.5 or later
- Red Hat Linux
- Fedora Core Linux
- SUSE Linux

The license server works - or can be made to work - on many other Linux distributions as well. If you are interested, please contact support@clcbio.com.

1.3 Network requirements

In order to check out a license from the server your client needs to establish a TCP-connection to the license server program running on your server. This means that your server will have to be reachable on the LAN or WAN network from your clients.

Clients working from remote locations will also be able to contact the license server if they are connected to your network through a VPN gateway or a similar solution.

1.4 Firewall settings

Your server is probably running some kind of local firewall to protect it against unauthorized access and other security hazards. To allow your clients to connect to the license server you will have to allow incoming TCP-traffic to the port that the server is listening on. The default port-number used by the license server is 6200, but you can configure the server to use a different port as described in section 3.2.1.

If you wish to use the auto-discovery feature of the license server, you will also have to allow incoming broadcast UDP-traffic to port number 6200. Because of the zero-configuration usage of this port, the port number is fixed and cannot be changed through the configuration file.

Please consult your operating system and/or firewall documentation for instructions on how to allow incoming traffic on specific TCP and UDP ports.

Chapter 2

License server installation

This first sections of this chapter describe how to install and run the license server on the supported operating systems. The license server can be installed as a service on Microsoft Windows, as a daemon on Mac OS X and Linux, or it can be run directly from the command line. There are three different versions of the license server distribution - one for each operating system.

The remaining part of the chapter describes how to monitor and control a running server and finally how to configure the license server by editing the config file.

2.1 Windows installation

First, unzip the license server distribution to a suitable location on the computer, e.g. `C:\Program files\clclicsrv`.

To install the License Server as a Windows Service, right-click on the `installservice` file and choose **Run as administrator** (see figure2.1).

This will open a terminal-window and guide you through the installation procedure. Press a key on the keyboard when asked to do so (see figure 2.2).

Once successfully installed the services will be visible in the **Services** control panel in Windows (see figure 2.3).

The name of the service is `LM-X License Server --- CLCBIO`. From here you can start, stop and restart the service if needed.

Next step is to download a license file (see section 2.1.2).

2.1.1 Uninstalling the Windows Service

To uninstall the service you can use the `uninstallservice` script. Run this in the same way as the install script: by right-clicking and choosing **Run as administrator**.

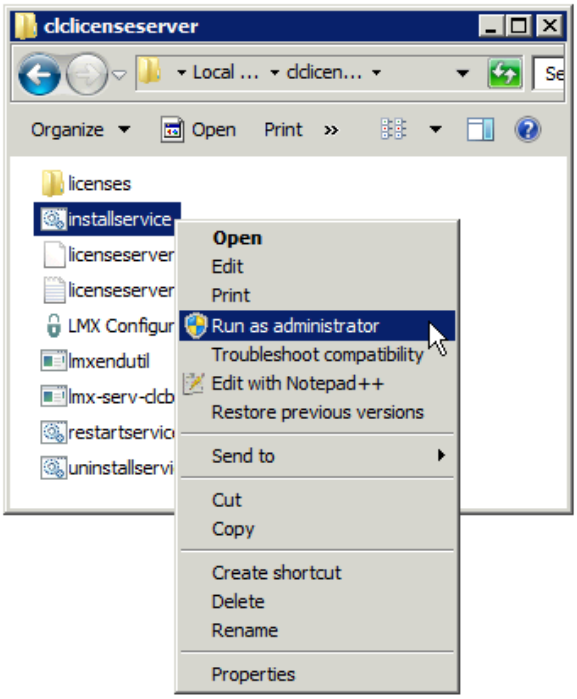

Figure 2.1: *Install the license server as a service.*

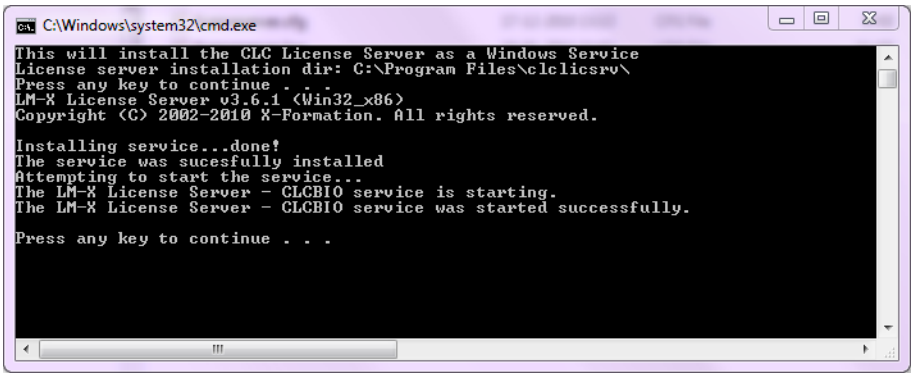
C:\Windows\system32\cmd.exe
This will install the CLC License Server as a Windows Service
License server installation dir: C:\Program Files\clclicsrv\
Press any key to continue . . .
LM-X License Server v3.6.1 (Win32_x86)
Copyright (C) 2002-2010 X-Formation. All rights reserved.
Installing service...done!
The service was sucesfully installed
Attempting to start the service...
The LM-X License Server - CLCBIO service is starting.
The LM-X License Server - CLCBIO service was started successfully.
Press any key to continue . . .

Figure 2.2: *The installation procedure.*

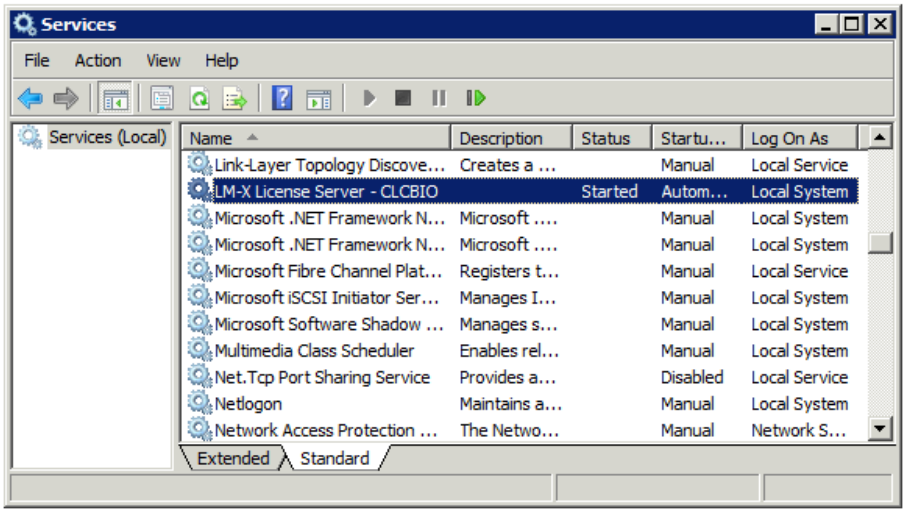
Services
File
Action
View
Help
Services (Local)
Name
Description
Status
Startu...
Log On As
Link-Layer Topology Discove... Creates a ... Manual Local Service
LM-X License Server - CLCBIO Started Autom... Local System
Microsoft .NET Framework N... Microsoft .... Manual Local System
Microsoft .NET Framework N... Microsoft .... Manual Local System
Microsoft Fibre Channel Plat... Registers t... Manual Local Service
Microsoft iSCSI Initiator Ser... Manages I... Manual Local System
Microsoft Software Shadow ... Manages s... Manual Local System
Multimedia Class Scheduler Enables rel... Manual Local System
Net.Tcp Port Sharing Service Provides a... Disabled Local Service
Netlogon Maintains a... Manual Local System
Network Access Protection ... The Netwo... Manual Network S...
Extended
Standard

Figure 2.3: *The services window can be found in the Control Panel.*

2.1.2 Downloading license files for Windows

The license server will look for licenses in the `licenses` folder. This means that all license files should be located in this folder.

License files are downloaded using the `licensedownload` script. To run the script, right-click on the file and choose **Run as administrator**. This will present a window as shown in figure A.1.

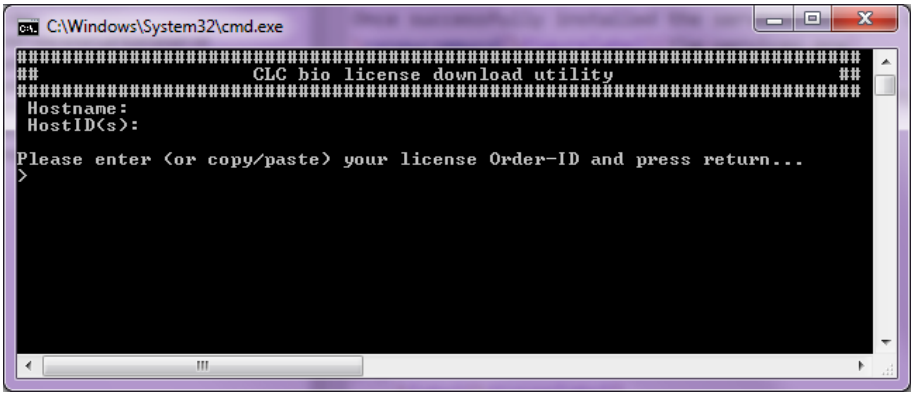

Figure 2.4: *Download a license based on the Order ID.*

Paste the Order ID supplied by CLC bio (right-click to **Paste**) and press Enter. Please contact support@clcbio.com if you have not received an Order ID.

Next, you need to restart the server by running the `restartservice` script. To do this right-click on the file and choose **Run as administrator**. You can also restart the server through the Services control panel shown in figure 2.3.

Note that if you are *upgrading* an existing license file, this needs to be deleted from the `licenses` folder. When you run the `licensedownload` script, it will create a new license file. Next step is to check that the server is running as expected (see section 2.1.3)

2.1.3 Checking that the server is ready

As a final check to see if the server is running as expected, open the log file `licenseserver.log` in a text editor (e.g. Wordpad) and check the lines at the bottom of the file. It should look similar to this:

```
[2011-01-19 10:54:52] Configuration file path: C:\Program Files\clclicsrv\licenseserver.cfg
[2011-01-19 10:54:52] Serving following features:
[2011-01-19 10:54:52] CLCGENOMICSWB (v4.99) (2 license(s)) license type: exclusive
[2011-01-19 10:54:52]
[2011-01-19 10:54:52] Minimum user remove time set to 120 seconds.
[2011-01-19 10:54:52] Ready to serve...
```

You can see that 2 licenses for *CLC Genomics Workbench* are available and that the license server is ready to serve the licenses.

Your server installation is now complete.

2.2 Mac OS installation

The license server is downloaded as an installer that will extract the relevant files and start the server daemon. Click through the installer, and the license server is installed.

The `stopserver.command`, `startserver.command` and `restartserver.command` can be used to control the server once installed. Simply double-click the relevant file to run it.

Note that this needs to be done by a user with administrative privileges.

Next step is to download a license file (see section 2.2.1).

2.2.1 Downloading license files for Mac OS

The license server will look for licenses in the `licenses` folder. This means that all license files should be located in this folder.

License files are downloaded using the `downloadlicense.command` script. To run the script, double-click on the file. This will present a window as shown in figure A.2.

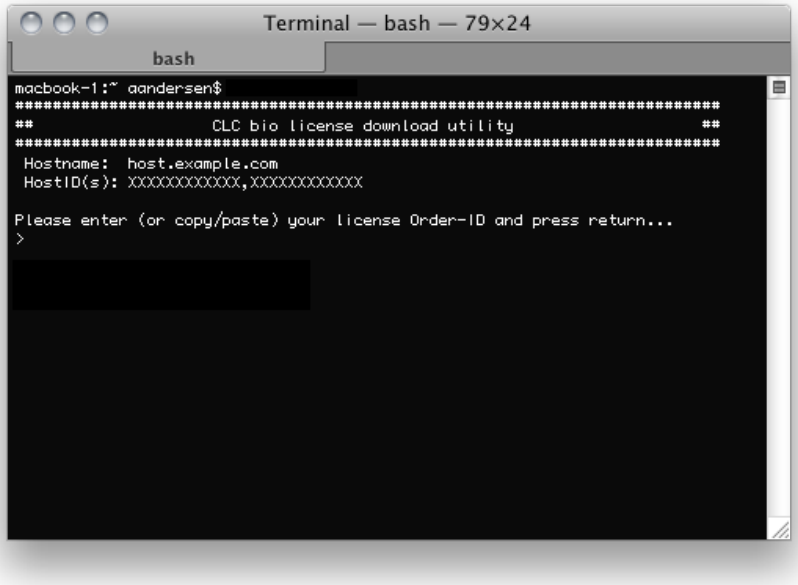

Figure 2.5: *Download a license based on the Order ID.*

Paste the Order ID supplied by CLC bio and press Enter. Please contact support@clcbio.com if you have not received an Order ID.

Next, you need to restart the server by double-clicking the `restartserver.command` script.

Note that if you are *upgrading* an existing license file, this needs to be deleted from the `licenses` folder. When you run the `downloadlicense.command` script, it will create a new license file.

Next step is to check that the server is running as expected (see section 2.2.2).

2.2.2 Checking that the server set-up is complete

As a final check to see if the server is running as expected, open the log file `licenseserver.log` and check the lines at the bottom of the file. It should look similar to this:

```
[2011-01-19 10:54:52] Serving following features:
[2011-01-19 10:54:52] CLCGENOMICSWB (v4.99) (2 license(s)) license type: exclusive
[2011-01-19 10:54:52]
[2011-01-19 10:54:52] Minimum user remove time set to 120 seconds.
[2011-01-19 10:54:52] Ready to serve...
```

You can see that 2 licenses for *CLC Genomics Workbench* are available and that the license server is ready to serve the licenses.

Your server installation is now complete.

2.3 Linux installation

The instructions below are for installing the CLC License Server on a RHEL/CentOS Linux distribution. With a few modifications you should be able to use the instructions on any suitable Linux distribution.

The instructions include adding a dedicated user account for running the license server as well as installing a startup script for automatic startup of the license server at boot time.

2.3.1 Add user

Create a user account for running the license server (`clclicsrv` in this example). Please ensure that this user account has a home directory, such that $HOME exists and can be found. For some Linux flavours, you can do this simply with a command like:

```
useradd clclicsrv
```

For other Linux flavours, you may need to add a flag to enable the creation of a home directory.

2.3.2 Install the files

Extract the contents of the zip-file to a suitable location (`/usr/local/` in this example) and change the owner ship to the `clclicsrv` user you have just created.

```
cd /usr/local/
unzip /path/to/clclicenseserver\_linux.zip
chown -R clclicsrv /usr/local/clclicsrv
```

2.3.3 Install the startup script

Copy the file `/usr/local/clclicenseserver/runscript/clclicsrv` to your startup-script directory (typically `/etc/init.d`):

```
cp /usr/local/clclicenseserver/runscript/clclicsrv /etc/init.d/
```

2.3.4 Modify the startup script

Open the file `/etc/init.d/clclicsrv` with a text editor (nano, pico, emacs, vi or similar). Edit the configuration variables to suit your installation and environment.

If you have used the default values found in these instructions you should only have to change the **PASSWORD** variable to match the **REMOTE_ACCESS_PASSWORD** from your license server configuration file.

```
# Set the username under which the license server will run (it is not recommended to run as root)
    USER=clclicsrv
    # Set the license server password, which is specified in your lmx-serv.cfg file
# as REMOTE\_ACCESS\_PASSWORD

    PASSWORD=MyPassword123

    # Set the TCP/UDP portnumber the license server will listen on.

    PORT=6200

    # Set the path to the directory that contains the license server files

    DIRECTORY=/usr/local/clclicenseserver
```

2.3.5 Start the license server

If you are running in a RedHat-style Linux distribution use the following command to start the license server as *root*:

```
service clclicsrv start
```

If the `service` command is not available you can start the server by invoking the script directly:

```
/etc/init.d/clclicsrv start
```

Once the server is started, check the log file for status:

```
cat /usr/local/clclicsrv/licenseserver.log
```

If the server was started correctly you should see output similar to:

```
[2010-12-17 14:00:06] LM-X License Server v3.6.1 build RELEASE on hostname (Linux\_x86)
[2010-12-17 14:00:06] Copyright (C) 2002-2010 X-Formation. All rights reserved.
[2010-12-17 14:00:06] Website: \url{http://www.lm-x.com} http://www.x-formation.com
[2010-12-17 14:00:06] License server has pid 17684.
[2010-12-17 14:00:06] Serving licenses for vendor CLCBIO.
[2010-12-17 14:00:06]
[2010-12-17 14:00:06] License server using TCP IPv4 port 6200.
[2010-12-17 14:00:06] License server using TCP IPv6 port 6200.
[2010-12-17 14:00:06] License server using UDP IPv4 port 6200.
[2010-12-17 14:00:06] Reading licenses...
[2010-12-17 14:00:06] Log file path: /usr/local/clclicsrv/licenseserver.log
[2010-12-17 14:00:06] Log to stdout: No
[2010-12-17 14:00:06] Log format: Normal
[2010-12-17 14:00:06] Configuration file path: /usr/local/clclicsrv/licenseserver.cfg
[2010-12-17 14:00:06] WARNING: No licenses to serve!
[2010-12-17 14:00:06]
[2010-12-17 14:00:06] Minimum user remove time set to 120 seconds.
[2010-12-17 14:00:06] Ready to serve...
```

2.3.6 Enable on-boot startup using chkconfig

If you are installing on a RedHat-style distribution you can use the `chkconfig` tool to make the license server startup automatically at boot time:

```
chkconfig clclicsrv on
```

To check if the license server is set to startup automatically use the following command:

```
chkconfig --list
```

In the output look for a line similar to:

```
clclicsrv  0:off 1:off 2:on 3:on 4:on 5:on 6:off
```

Make sure that the service is listed as **on** for the appropriate run-level (typically 3 or 5).

2.3.7 Downloading license files for Linux

The license server will look for licenses in the `/usr/local/clclicsrv/licenses` directory. This means that all license files should be located in this directory.

License files are downloaded using the `downloadlicense` script. Run the script and paste the Order ID supplied by CLC bio. Please contact support@clcbio.com if you have not received an Order ID.

Next, you need to restart the server:

```
service clclicsrv restart
```

If the `service` command is not available you can start the server by invoking the script directly:

```
/etc/init.d/clclicsrv restart
```

Note that if you are *upgrading* an existing license file, this needs to be deleted from the `licenses` folder. When you run the `downloadlicense` script, it will create a new license file.

2.4 Upgrading an old server installation

This section explains how to upgrade from an older version of the license server to version 3.6.1.

2.4.1 Windows upgrade

Before setting up the new version of the license server you have to remove the service already installed.

Locate your current license server installation directory and open the "LMX Configuration Tool" application. Choose the "License Server Configuration" tab and you see something similar to figure 2.6.

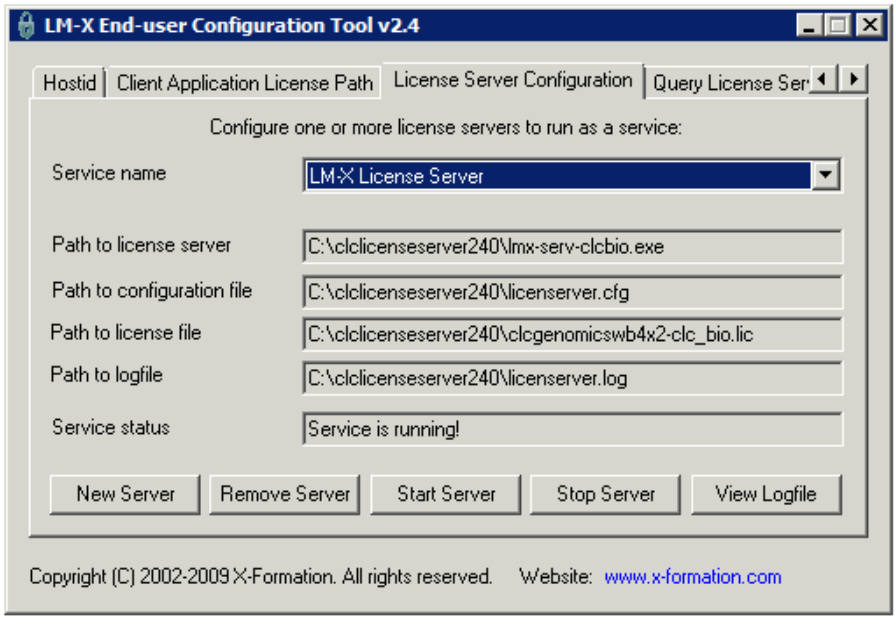

Figure 2.6: *To remove the old service, click Remove server.*

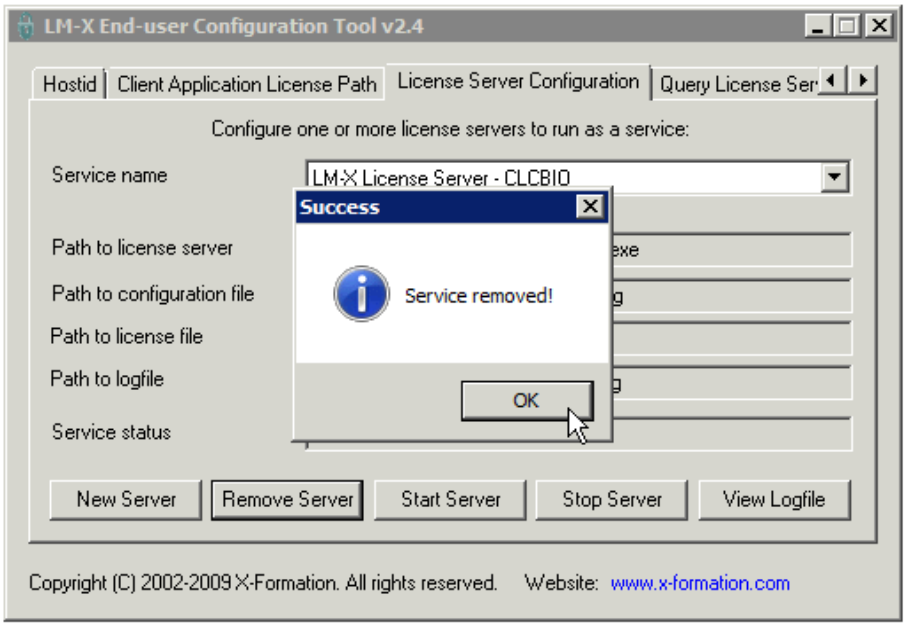

Figure 2.7: *The old service has been removed.*

Click on the "Remove Server" button to remove the current running service, and a dialog will inform you when done (see figure 2.7).

Once the server has been removed you can begin setting up the new service. Please follow the instructions in section 2.1.

If you have made changes to the configuration file of your current installation you can replace the configuration file of the new server once installed. You may also want to save a copy of the log-file.

A key improvement of the new server is that license file management has become a lot simpler.

Any license file placed in the `licenses` directory will be loaded by the server. As a consequence you no longer need to specify each license file in the configuration file. If you have configurations like this in your configuration file you can remove them.

2.4.2 Mac OS upgrade

Running the installer package for the new version of the License Server will update an existing package-based installation. After the installation is complete you can use the included management scripts to start, stop and restart the server.

Please follow the instructions in section 2.2 to install the new server. The old log and configuration files will be preserved.

If you have performed a manual installation without using the package based installer you will need to stop the running server before installing the new version. After installing the package the license server will be located in the directory /Application/CLCLicenseServer. Please migrate any existing configurations to this directory and restart the server.

2.4.3 Linux upgrade

Before updating make sure that your current running instance is stopped. After the instance is stopped, follow the installation instructions in section 2.3 to setup the new version. If you have made changes to the configuration files you can transfer them to the new version.

If you have written your own startup script for the license server you should be able to reuse it with the updated version. Alternatively you may want to have a look at the included startup script located in the `runscript` directory. You are also encouraged to have a look at the installation guide in section 2.3 for instructions.

A key improvement of the new license server is the ability to specify a directory for storing your license files. Any files within this directory will be loaded and you no longer need to add each file to the configuration file.

If you are using a custom startup script you will need to make a change to the invocation of the server to use this. You need to specify the `-l` option with the full path to a directory as argument as shown below.

```
lmx-serv-clcbio -l <path to license dir>
```

Chapter 3

Monitoring and configuration of the server

3.1 Monitoring and controlling the license server (all platforms)

There are a number of different ways you can monitor and control a running license server using the command line *LM-X End-user Utility* which is available for all platforms. Please note that you can monitor a license server running on one platform (e.g. Linux) from another computer running a different operating system (e.g. Windows).

3.1.1 Using the End User Utility

The LM-X End User Utillity is a command line tool for querying and controlling the license server. The relevant commands are described below.

In all the commands the arguments enclosed in angle-brackets < and > must be replaced an actual argument. If you are running the End User Utility on the same machine as the server and on the standard port (6200) you can omit the `–host` and `–port` options from the commands.

If you omit the `–password` option from the command, you will be prompted for it when executing the command. An additional advantage of entering your password in this way is that a person standing next to will not be able to read it.

To display the current status of the license server use the command:

```
lmxendutil –licstat –host <server host> –port <port>
```

To remove a user from the license server (i.e. retrieve the license checked out for this user and thereby interrupt the user's Workbench session) use the command:

```
 lmxendutil –removeuser –clientusername <user>
–clienthostname <host> –host <host>
           –port <port> –password <password>
```

3.1.2 XML output

If you would like to process the license server status output in some programmatic way, you can use the End User Utility to extract the status in XML format. Contrary to the log, the XML output displays the *current status* of the server. The syntax for displaying the license statistics in XML format is:

```
/lmxendutil –licstatxml –host <server host> –port <server port>
```

The output produced is in the format:

```
<?xml version="1.0" encoding="UTF-8"?>
<LM-X STAT_VERSION="2.0" SERVER_VERSION="2.0" VENDOR="CLCBIO" UPTIME="6 hour(s) 21 min(s) 22 sec(s)">
   <FEATURE NAME="DNA" VERSION="3.0" END="2008-01-01" USED_LICENSES="1" TOTAL_LICENSES="5">
   </FEATURE>
   <FEATURE NAME="COMBINED" VERSION="3.0" END="2008-01-01" USED_LICENSES="12" TOTAL_LICENSES="25">
   </FEATURE>
</LM-X>
```

Depending on how this output is processed you can use this functionality for many different purposes including:

- Automatic monitoring of license server health and usage
- Generating statistics about license usage
- Presenting the status of the license server in some other way (for example on a web page)

3.2 Configuring the license server

Changing the configuration of the license server is accomplished by editing the server.cfg file and subsequently restarting the license server process. By editing this file you can change many different aspects of the license server, including paths to various files and access restrictions.

3.2.1 General configuration

Below are descriptions of the various configuration options which specify the environment of the license server, paths to various files, and the administration password.

TCP_LISTEN_PORT

This option defines the TCP-portnumber that the license server will use to listen for connections. The TCP port is used for data traffic protocol. A separate UDP port is used for automatic server discovery protocol.

The default TCP port is 6200, but can be changed to any port you may desire. The UDP port is fixed to 6200 and cannot be changed.

Example:

```
TCP_LISTEN_PORT = 6200
```

LICENSE_FILE

Specify the path to a license file which will be read by the server. The filenames must be lowercase. You can specify one or multiple paths as needed.

Examples:

```
LICENSE_FILE = d:\server\network.lic
LICENSE_FILE = c:\extra_file.lic
LICENSE_FILE = /home/licserver/floating_license.lic
LICENSE_FILE = /home/licserver/floating_license2.lic
```

REMOTE_ACCESS_PASSWORD

Specify the remote administration password which is used when remotely stopping and restarting the license server and removing users from it.
The password is case-sensitive.

Example:

```
REMOTE_ACCESS_PASSWORD = MyPassword123
```

LOG_FILE

Set the logfile path. It is recommended to specify the absolute path to the log file.

Example:

```
LOG_FILE = c:\program files\lmx-server.log
LOG_FILE = /var/log/lmx-serv.log
```

LOG_EXCLUDE

Exclude specific messages from the log. The following messages can be excluded:
CHECKOUT, CHECKIN, STATUS, BORROW, BORROW_RETURN, REMOVE_USER, REMOTE_RESTART and REMOTE_SHUTDOWN.

Example:

```
LOG_EXCLUDE = CHECKOUT, CHECKIN, STATUS
```

3.2.2 Access restrictions

This section describes various configuration options which can be used to grant or deny access for specific clients or groups of clients. You can for example use these options to limit access to a department or group of users. Access limitations can be specified based on ip-addresses, host names or user names.

Restrictions are specified as a sequence of rules which are used in the following way:

- Rules are attempted to be matched in the order that they are written.
- If no rule matches the specific client, then that client is allowed.

An overview of the possible rules are presented in the following table.

Option	Argument	Description
ALLOW_IPADDR_ALL	One or more IP-addresses	Allow access to all features for the specified IP-addresses.
ALLOW_IPADDR_<feature>	One or more IP-addresses	Allow access to a specific feature for the specified IP-addresses.
DENY_IPADDR_ALL	One or more IP-addresses	Deny access to all features for the specified IP-addresses.
DENY_IPADDR_<feature>	One or more IP-addresses	Deny access to a specific feature for the specified IP-addresses.
ALLOW_HOST_ALL	One or more host names	Allow access to all features for the specified host names.
ALLOW_HOST_<feature>	One or more host names	Allow access to a specific feature for the specified host names.
DENY_HOST_ALL	One or more host names	Deny access to all features for the specified host names.
DENY_HOST_<feature>	One or more host names	Deny access to a specific feature for the specified host names.
ALLOW_USER_ALL	One or more users	Allow access to all features for the specified users
ALLOW_USER_<feature>	One or more uses	Allow access to a specific feature for the specified users
DENY_USER_ALL	One or more users	Deny access to all features for the specified users
DENY_USER_<feature>	One or more users	Deny access to a specific feature for the specified users

All arguments must be specified as a space-separated list. IP-addresses must be specified as specific addresses with the form: A.B.C.D or with wildcards A.*.B.*

Example 1:

```
ALLOW_IPADDR_ALL = 192.168.1.* 192.168.2.*
ALLOW_USER_ALL = alice bob
DENY_IPADDR_ALL = *.*.*.*
```

This configuration in this example will:

- Allow access to clients on 2 subnets (perhaps a specific lab or class room)
- Allow access to the two users *alice* and *bob* from any host
- Deny access for everyone else.

The restrictions will apply to all features available on the license server.

Example 2:

```
DENY_HOST_MAIN = lab1 office1
ALLOW_IPADDR_MAIN = 192.168.*.*
DENY_IPADDR_MAIN = *.*.*.*
```

This configuration will deny the machines with hostname 'lab1' and 'office1', allow clients on the internal network, and deny everyone else. This applies to the feature called MAIN, which corresponds to the CLC Main Workbench.

3.2.3 Borrow restrictions

A set of rules for restricting access to borrowing licenses are also available. The available rules are almost identical to the rules used to restrict overall access to the license server described in the previous section.

An overview of the possible rules are presented in the following table.

Option	Argument	Description
ALLOW_BORROW_IPADDR_ALL	One or more IP-addresses	Allow all features to be borrowed for the specified IP-addresses.
ALLOW_BORROW_IPADDR_<feature>	One or more IP-addresses	Allow the specific feature to be borrowed for the specified IP-addresses.
DENY_BORROW_IPADDR_ALL	One or more IP-addresses	Deny all features to be borrowed for the specified IP-addresses.
DENY_BORROW_IPADDR_<feature>	One or more IP-addresses	Deny Allow the specific feature to be borrowed for the specified IP-addresses.
ALLOW_BORROW_HOST_ALL	One or more host names	Allow all features to be borrowed for the specified host names.
ALLOW_BORROW_HOST_<feature>	One or more host names	Allow the specific feature to be borrowed for the specified host names.
DENY_BORROW_HOST_ALL	One or more host names	Deny all features to be borrowed for the specified host names.
DENY_BORROW_HOST_<feature>	One or more host names	Deny the specific feature to be borrowed for the specified host names.
ALLOW_BORROW_USER_ALL	One or more users	Allow all features to be borrowed for the specified users
ALLOW_BORROW_USER_<feature>	One or more uses	Allow the specific feature to be borrowed for the specified users
DENY_BORROW_USER_ALL	One or more users	Deny all features to be borrowed for the specified users
DENY_BORROW_USER_<feature>	One or more users	Deny the specific feature to be borrowed for the specified users

The rules are written and used in the same way as the access restriction rules described in the previous section.

If you wish to disable borrowing for all users, put this into the config file:

```
DENY_BORROW_IPADDR_ALL = *.*.*.*
```

3.2.4 Borrow limits

Two limits are available which can be used to prevent clients from borrowing all the available licenses for a given feature, or from borrowing a feature for an unreasonable long time.

BORROW_LIMIT_COUNT

Imposes a limit on the number of licenses which can be borrowed to prevent all licenses from being borrowed at the same time. Borrow limits are configured separately for each feature.

The syntax is:

```
BORROW_LIMIT_COUNT_<feature name> = <limit count>
```

Where `<limit count>` is number from 1 to the number of available licenses for the given feature. If you wish to restrict the feature from being borrowed completely you should specify a restriction as described in the previous section.

Example:

```
BORROW_LIMIT_COUNT_PROTEIN = 1
BORROW_LIMIT_COUNT_RNA = 5
```

The configuration in the example above will allow one license for the CLC Protein Workbench to be borrowed and five licenses for the CLC RNA Workbench.

BORROW_LIMIT_HOURS

Limit the number of hours which licenses can be borrowed to prevent licenses from being borrowed too long. Borrow limits are configured separately for each feature.

The syntax is:

```
BORROW_LIMIT_HOURS_<feature name> = <limit hours>
```

Where `<limit hours>` is a number between 1 and the maximum borrow period imposed by the license. The maximum borrow limit for CLC Workbenches is one week. Setting the limit to a value higher than the limit imposed by the license will result in an error when starting the license server.

Example:

```
BORROW_LIMIT_HOURS_PROTEIN = 48
BORROW_LIMIT_HOURS_RNA = 12
```

The configuration in the example above will allow licenses for the CLC Protein Workbench to be borrowed and for 48 hours and licenses for the CLC RNA Workbench to be borrowed for 12 hours.

Chapter 4

Clients

To use a floating license, select **Configure license server connection** in the dialog shown in figure 4.1.

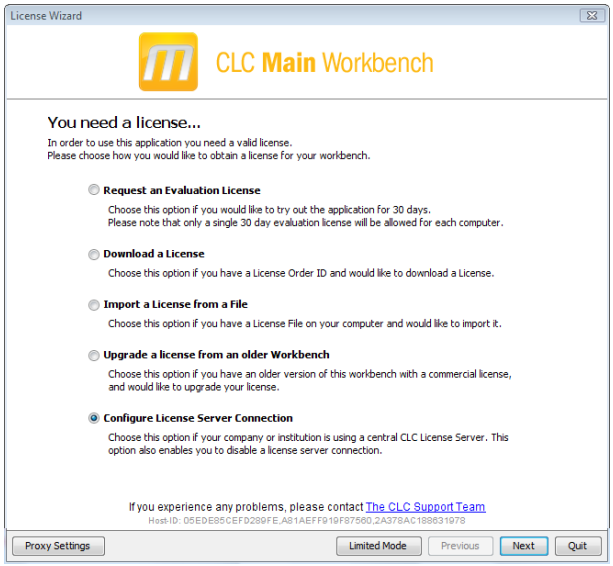
License Wizard
CLC Main Workbench
You need a license...
In order to use this application you need a valid license.
Please choose how you would like to obtain a license for your workbench.
Request an Evaluation License
Choose this option if you would like to try out the application for 30 days.
Please note that only a single 30 day evaluation license will be allowed for each computer.
Download a License
Choose this option if you have a License Order ID and would like to download a License.
Import a License from a File
Choose this option if you have a License File on your computer and would like to import it.
Upgrade a license from an older Workbench
Choose this option if you have an older version of this workbench with a commercial license, and would like to upgrade your license.
Configure License Server Connection
Choose this option if your company or institution is using a central CLC License Server. This option also enables you to disable a license server connection.
If you experience any problems, please contact The CLC Support Team
Host-ID: 05EDE85CEFD289FE,A81AEFF919F87560,2A378AC188631978
Proxy Settings
Limited Mode
Previous
Next
Quit

Figure 4.1: *Select "Configure license server connection".*

When you have selected this option and click **Next**, you will see the dialog shown in figure 4.2.

This dialog lets you specify how to connect to the license server:

- **Connect to a license server**. Check this option if you wish to use the license server.
- **Automatically detect license server**. By checking this option you do not have to enter more information to connect to the server.
- **Manually specify license server**. There can be technical limitations which mean that the license server cannot be detected automatically, and in this case you need to specify more options manually:
  - **Host name**. Enter the address for the licenser server.
  - **Port**. Specify which port to use.
- **Disable license borrowing on this computer**. If you do not want users of the computer to borrow a license (see section 4), you can check this option.

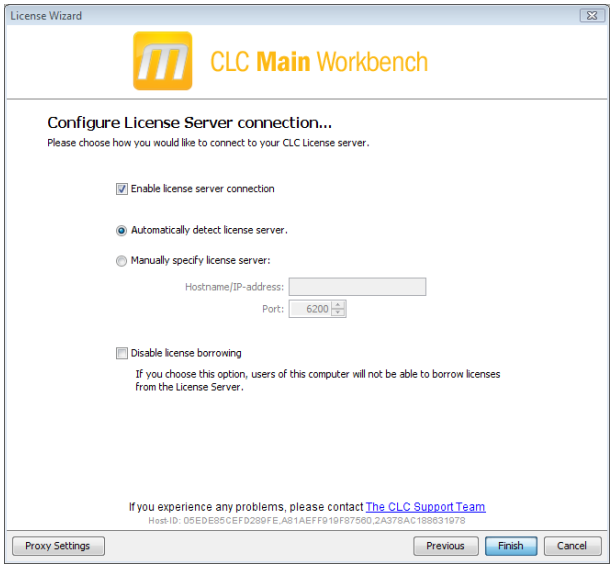
License Wizard
CLC Main Workbench
Configure License Server connection...
Please choose how you would like to connect to your CLC License server.
Enable license server connection
Automatically detect license server.
Manually specify license server:
Hostname/IP-address:
Port:
6200
Disable license borrowing
If you choose this option, users of this computer will not be able to borrow licenses from the License Server.
If you experience any problems, please contact The CLC Support Team
Host-ID: 05EDE85CEFD289FE,A81AEFF919F87560,2A378AC188831978
Proxy Settings
Previous
Finish
Cancel

Figure 4.2: *Connecting to a license server.*

Borrow a license

A floating license can only be used when you are connected to the license server. If you wish to use the CLC Workbench when you are not connected to the server, you can *borrow* a license. Borrowing a license means that you take one of the floating licenses available on the server and borrow it for a specified amount of time. During this time period, there will be one less floating license available on the server.

At the point where you wish to borrow a license, you have to be connected to the license server. The procedure for borrowing is this:

1. Click **Help** | **License Manager** to display the dialog shown in figure **??**.
2. Use the checkboxes to select the license(s) that you wish to borrow.
3. Select how long time you wish to borrow the license, and click **Borrow Licenses**.
4. You can now go offline and work with CLC Workbench.
5. When the borrow time period has elapsed, you have to connect to the license server again to use CLC Workbench.
6. When the borrow time period has elapsed, the license server will make the floating license available for other users.

Note that the time period is not the period of time that you actually use the Workbench.

Note! When your organization's license server is installed, license borrowing can be turned off. In that case, you will not be able to borrow licenses.

No license available...

If all the licenses on the server are in use, you will see a dialog as shown in figure 4.3 when you start the Workbench.

In this case, please contact your organization's license server administrator. To purchase additional licenses, contact sales@clcbio.com.

You can also click the **Limited Mode** button (see section **??**).

If your connection to the license server is lost, you will see a dialog as shown in figure 4.4.

In this case, you need to make sure that you have access to the license server, and that the server is running.

The information about how to connect to the license server is stored in a file called *license.properties* in the installation directory of the Workbench under settings (e.g. C:\Program Files\CLC Main Workbench 4\settings\license.properties).

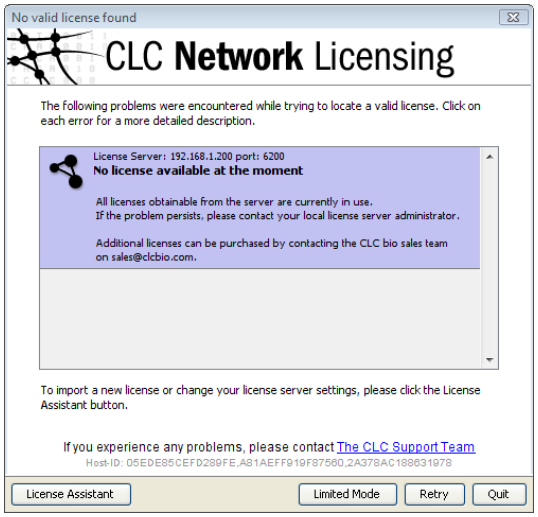
No valid license found
CLC Network Licensing
The following problems were encountered while trying to locate a valid license. Click on each error for a more detailed description.
License Server: 192.168.1.200 port: 6200
No license available at the moment
All licenses obtainable from the server are currently in use.
If the problem persists, please contact your local license server administrator.
Additional licenses can be purchased by contacting the CLC bio sales team on sales@clcbio.com.
To import a new license or change your license server settings, please click the License Assistant button.
If you experience any problems, please contact The CLC Support Team
Host-ID: 05EDE85CEFD289FE,A81AEFF919F87560,2A378AC188631978
License Assistant
Limited Mode
Retry
Quit

Figure 4.3: *No more licenses available on the server.*

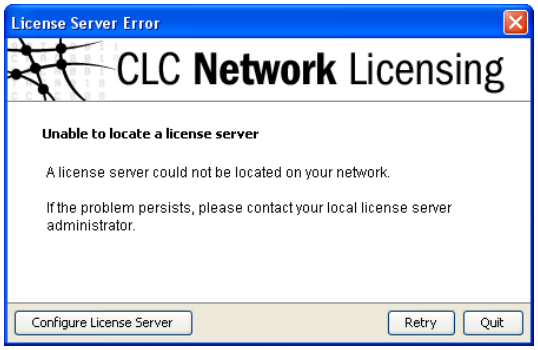
License Server Error
CLC Network Licensing
Unable to locate a license server
A license server could not be located on your network.
If the problem persists, please contact your local license server administrator.
Configure License Server
Retry
Quit

Figure 4.4: *Unable to contact license server.*

Appendix A

License download

This section explains how to download a license for a license server that is already installed. For guidance on installation, please see chapter 2.

A.1 Downloading license files for Windows

The license server will look for licenses in the `licenses` folder. This means that all license files should be located in this folder.

License files are downloaded using the `licensedownload` script. To run the script, right-click on the file and choose **Run as administrator**. This will present a window as shown in figure A.1.

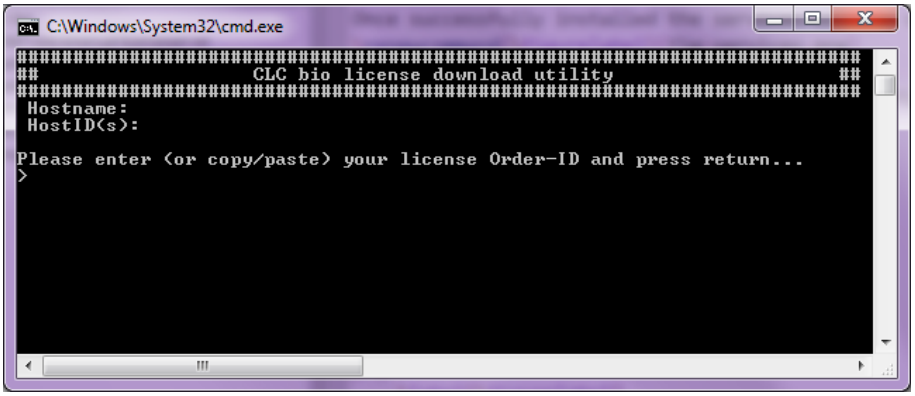

Figure A.1: *Download a license based on the Order ID.*

Paste the Order ID supplied by CLC bio (right-click to **Paste**) and press Enter. Please contact support@clcbio.com if you have not received an Order ID.

Next, you need to restart the server by running the `restartservice` script. To do this right-click on the file and choose **Run as administrator**. You can also restart the server through the Services control panel shown in figure 2.3.

Note that if you are *upgrading* an existing license file, this needs to be deleted from the `licenses` folder. When you run the `licensedownload` script, it will create a new license file.

A.2 Downloading license files for Mac OS

The license server will look for licenses in the `licenses` folder. This means that all license files should be located in this folder.

License files are downloaded using the `downloadlicense.command` script. To run the script, double-click on the file. This will present a window as shown in figure A.2.

Paste the Order ID supplied by CLC bio and press Enter. Please contact support@clcbio.com if you have not received an Order ID.

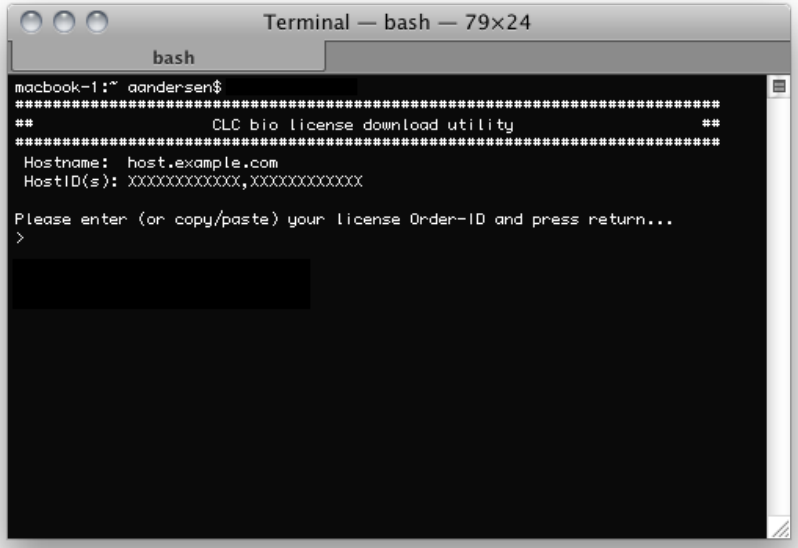

Figure A.2: *Download a license based on the Order ID.*

Next, you need to restart the server by double-clicking the `restartserver.command` script.

Note that if you are *upgrading* an existing license file, this needs to be deleted from the `licenses` folder. When you run the `downloadlicense.command` script, it will create a new license file.

A.3 Downloading license files for Linux

The license server will look for licenses in the `/usr/local/clclicsrv/licenses` directory. This means that all license files should be located in this directory.

License files are downloaded using the `downloadlicense` script. Run the script and paste the Order ID supplied by CLC bio. Please contact support@clcbio.com if you have not received an Order ID.

Next, you need to restart the server:

```
service clclicsrv restart
```

If the `service` command is not available you can start the server by invoking the script directly:

```
/etc/init.d/clclicsrv restart
```

Note that if you are *upgrading* an existing license file, this needs to be deleted from the `licenses` folder. When you run the `downloadlicense` script, it will create a new license file.

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